

DEFENSE-WIDE  
FY 2000/2001 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 0450D Developmental Test &amp; Eval, Defense

Date: FEB 1999

Line No	Program Element Number	Item	Act	Thousands of Dollars				S E C
				FY 1998	FY 1999	FY 2000	FY 2001	
1	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	6	118,718	131,669	121,741	121,943	U
2	0605130D8Z	Foreign Comparative Testing	6	32,657	32,684	31,876	31,947	U
3	0605804D8Z	Development Test and Evaluation	6	99,005	94,253	99,840	99,633	U
		<b>RDT&amp;E Management Support</b>		<b>250,380</b>	<b>258,606</b>	<b>253,457</b>	<b>253,523</b>	
		<b>Total Developmental Test &amp; Eval, Defense</b>		<b>250,380</b>	<b>258,606</b>	<b>253,457</b>	<b>253,523</b>	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)							February 1999			
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			CENTRAL TEST AND EVALUATION INVESTMENT PROGRAM (CTEIP) PE 0604940D							
\$'s in Thousands	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	COST TO COMPLETE	TOTAL COST
PE 0604940D	118,718	131,669	121,741	121,943	117,234	126,503	129,148	131,818	Cont'g	Cont'g

**A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION**

Since FY 1990 this program element has been, and continues to be, used to fund the development of critically needed, high priority, Test and Evaluation (T&E) capabilities for joint/multi-Service requirements. The Central Test and Evaluation Investment Program (CTEIP) uses a corporate investment approach to combine Service and Defense Agency T&E needs, maximize opportunities for joint efforts, and eliminate unwarranted duplication of test capabilities. CTEIP focuses investments on projects that will have high productivity returns on investment. Projects under the CTEIP Program Element (PE) support two basic tasks: investments to improve the test capabilities base (Joint Improvement and Modernization (JIM) projects), and development of near-term solutions to test capability shortfalls in support of an ongoing operational test program (Resource Enhancement Project (REP)).

The JIM projects fund critically needed test and evaluation investments in the major functional areas of test mission command, control, communications and instrumentation; electronic warfare systems; threat and computational simulation test and evaluation; space systems T&E; weapons effects test capabilities; targets; and physical and environmental test capabilities. The investments include both the demonstrations of advanced technologies needed to test increasingly complex and sophisticated weapon systems and the transition of these technologies into test capabilities. Examples of project subject matter include: automated data collection, processing, display and archiving; smart munitions testing; modeling and simulation; advanced electronic combat systems; low-observable technologies and signature measurements; targets and target control; time-space-position-indication; end-game measurement; testing of advanced materials application; test design; and advanced sensors and space systems. CTEIP continues as the focal point for fostering common architectures throughout the test and training communities to enhance the sharing of resources and links between test and training ranges. CTEIP has provided special focus to institutionalize the use of modeling and simulation as practical test methods; to link ranges through internetting to enhance inter-range and inter-Service cooperation and resource sharing; and, to ensure development and acquisition of common instrumentation necessary for a more efficient test infrastructure. These efforts directly support the

Department's initiative to improve the effectiveness of the Simulation, Test and Evaluation Process (STEP). Test Capabilities Benefit Analyses are conducted for each investment project to validate T&E requirements, to define integrated support systems, and to determine overall cost effectiveness of the proposed test investments. The use of DoD-wide criteria for requirement validation, prioritization, and risk assessment ensures an effective test resource investment program.

The REP funds development of near-term solutions for critical ongoing operational test support. The requirements for these solutions and test assets are generally not known more than two years in advance of a critical test requirement, and as such, are not programmable within the normal planning and budgeting process. Funding these activities under the CTEIP provides the opportunity to coordinate and integrate these near-term test requirements with the total DoD test and evaluation investment planning, and ensures their availability and legacy for other programs that may have similar testing requirements.

This Research Category 6.4 PE supports the development and application of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.

**(U) PROGRAM ACCOMPLISHMENTS AND PLANS:**

FY 1998 Accomplishments:

JIM Projects:

- Initiated and completed concept development phase of the High Speed Massive Memory Project.
- Initiated concept development phase of Target Modeling and Simulation Project.
- Initiated concept development phase of the Advanced Mobile Object Acquisition System (AMOS) Project.
- Initiated concept development and design of the Electromagnetic Environmental Effects Generating System Project.
- Initiated concept development for the Multi-Service Target Control System (MSTCS). This project builds on the usable design, hardware and software available from the canceled Next Generation Target Control System Project.
- Initiated concept development of conventional upgrade requirements for the Holloman High Speed Sled Track.
- Initiated concept development of the Airborne Icing Project.
- Continued development, fabrication and test of Transportable Range Augmentation Control System Project.
- Continued development of the Joint Installed System Test Facility instrumentation capability including:
  - Continued development of Multi-Spectral Scene Generator;
  - Continued hardware and software design for Communication, Navigation, Identification Simulator;
  - Completed design of prototype Generic Radar Target Generator; and
  - Continued development of Infrared Sensor Stimulator.
- Continued the Plume Measurement Capability Project.
- Continued engineering and manufacturing development of Translated GPS Range System.

- Continued to assess magnetic levitation technology for high speed test track applications.
- Continued concept development for increasing the efficiency and through put of telemetry channels within the Advanced Range Telemetry Project.
- Continued Test Technology Development and Demonstration Project.
- Continued Tri-Service, CTEIP support projects and MRTFB support.
- Consolidated the Joint Regional Range Complex, Virtual Test and Training Range, Common Display Analysis and processing System, and Test and Training Enabling Architecture projects into a single project entitled Foundation Initiatives 2010 (FI 2010). FI 2010 was designed to develop an integrated range architecture for interoperability among ranges.
- Established Airborne Separation Video effort as a stand-alone project. Completed development of the 512x512 pixel digital camera and continued development of color capability and increased resolution focal plane.
- Completed the Target Threat Validation Project by demonstrating a common target to threat validation process.
- Completed the Test Capability Benefit Analysis, initiated concept development and risk reduction effort for the Joint Advanced Missile Instrumentation Project.
- Completed the Weapons Modification and Simulation Capability Project, including the delivery of the Aircraft Stores Interface Manual and development of the F/A-18E/F and AH-64 Computerized Physical Fit Plus models.
- Completed the Bistatic Coherent Measurement System sub-project of Advanced Radar Cross Section Measurement System Project and initiated the Pylon Upgrade sub-project.
- Completed JADS Prototype Virtual Range Project.
- Completed concept development phase of the Tri-Service Target Signature Measurement and Database System Project.
- Completed DoD Software Alpha Test Bed Capability Project.
- Completed concept development phase of the Hardened Subminiature Telemetry and Sensor System Project.
- Terminated the Next Generation Target Control System Project.

Resource Enhancement Projects:

- Initiated Simulation Testing Operations Rehearsal Model sub-project to provide a battlefield environment for brigade and below C4I and tactical internet operational testing.
- Initiated Advanced Missile Instrumentation Package sub-project to accurately track a missile throughout the flight to include high kinematics environment.
- Initiated Ultraviolet Stimulator sub-project for open air testing of aircraft missile warning systems.
- Initiated Integrated Defensive Electronic Countermeasures (IDECM) Test Resources sub-project to develop a semi-active missile simulation capability for ECM testing.
- Initiated Realistic Operational Communications Scenarios (ROCS) sub-project to evaluate the performance of the Tactical Data Network and other Marine Air-to-Ground Task Force C4I systems.
- Initiated Laser Observation Test and Evaluation Capability (LOTEC) sub-project to provide a capability to verify the location of laser target designation data and correlate with fire control information.

- Initiated Realistic Operational Communications Scenarios (ROCS) sub-project to evaluate the performance of the Tactical Data Network and other Marine Air-to-Ground Task Force C4I systems.
- Initiated Laser Observation Test and Evaluation Capability (LOTEC) sub-project to provide a capability to verify the location of laser target designation data and correlate with fire control information.
- Initiated the Utah Test and Training Range Precision Guided Munitions sub-project to develop an extension to the TS-4 Target Complex.
- Initiated the Advanced Threat Instrumentation sub-project to instrument threat aircraft to provide real-time flight data into the range data and control infrastructure.
- Continued the Enhanced Threat System Replica (XM-43S) sub-project to instrument a threat weapon system.
- Continued Test Resource, Analysis and Planning task.
- Completed the GPS Jamming sub-project.
- Completed the Aerial Target Launch Ship to provide a self-propelled, maneuverable platform for launch of aerial targets.
- Completed modification of a second Big Crow aircraft to support EW testing.
- Completed the Missile on a Mountain sub-project to test aircraft systems against active and semi-active threat anti-aircraft missile systems.
- Completed Vulnerability Assessment sub-project.

FY 1999 Plans:

JIM Projects:

- Initiate full-scale development phase of the Hardened Sub-miniature Telemetry and Sensor System Project.
- Initiate full-scale development phase of the High Speed Massive Memory Project.
- Initiate concept development and development of the Test Capabilities Benefit Analysis for the Land and Sea Vulnerability Test Capability Project to provide an instrumented land-sea interface test location at the Aberdeen Test Center.
- Initiate concept development and development of the Test Capabilities Benefit Analysis for the BIG CROW EW Enhancement Project to upgrade and modernize high power amplifiers, antennas, communications and data systems for the BIG CROW high power stand off jamming capability.
- Initiate and complete the design for a heavy-duty roadway simulator.
- Initiate the concept development phase for the Electromagnetic Transient (EMT) Test and Evaluation Facility (EMTTEF) Project to provide a capability to assess aircraft hardness to EMT environments to meet MILSTD 464 requirements.
- Initiate the full-scale development phase of the Tri-Service Target Signature Measurement and Database System Project.
- Initiate concept development and risk reduction efforts for the Joint Modeling and Simulation System Project to provide interoperability among the Services' model and simulations.
- Continue development, fabrication and test of Transportable Range Augmentation Control System Project.
- Continue to develop an integrated range architecture for range interoperability and preparation for a demonstration using High Level Architecture computer language within the Foundation Initiatives 2010 Project.
- Continue the concept development phase of the Advanced Mobile Object Acquisition System (AMOS) Project to provide the next generation

multi-target acquisition system.

- Continue development of the Joint Installed System Test Facility instrumentation capability including:
  - Achieve IOC for Multi-Spectral Scene Generator;
  - Complete the Joint Data Link Simulator and continue hardware and software design for Joint Communications Simulator within the Communication, Navigation, Identification Simulator;
  - Continue fabrication and test of prototype Generic Radar Target Generator; and
  - Achieve IOC for Infrared Sensor Stimulator.
- Continue the concept development phase of the Multi-Service Target Control System (MSTCS) Project.
- Continue concept development of commercial upgrade of the Holloman High Speed Sled Track.
- Continue concept development of the Airborne Icing Project.
- Continue Test Technology Development and Demonstration Project.
- Continue Tri-Service and CTEIP support projects.
- Achieve FOC for the Plume Measurement Capability Project.
- Achieve IOC of the Translated GPS Range System capability.
- Transfer the responsibility for threat system simulator development efforts into the Threat System Simulator Development Project to improve integration and reduce potential duplication in threat and target modeling and validation efforts.
- Complete concept development and initiate full-scale development phase of the Target Modeling and Simulation Project.
- Complete the high resolution, color capable development and the low rate initial production for the starter kit camera sets within the Airborne Separation Video Project.
- Complete the concept development phase for the Electromagnetic Environmental Effects Generating System Project.
- Complete the concept development phase effort for the Joint Advanced Missile Instrumentation Project.
- Complete the Advanced Radar Cross Section Measurement System Project.
- Complete concept development and initiate the full-scale development phase for the Advanced Range Telemetry Project.

Resource Enhancement Projects:

- Initiate the Suite of Integrated Infrared Counter Measures/Common Missile Warning System (SIIRCM/CMWS) Test Instrumentation Project.
- Initiate the Dismounted Troop Instrumentation (DMTI) Project.
- Initiate the Weapons Analysis Facility Enhancement (WAFER) Project.
- Initiate the Radio Frequency Phase Distribution Upgrade (RF PDU) Project.
- Initiate the Missile Warning Test Capability (MWTC) Project.
- Initiate the QF-4 IR Characterization (IR CHAR) Project.
- Initiate the Joint OT&E Simulation Environment Facility (JOSEF) Project.
- Initiate the Reconfigurable Electro-Optical and Magnetic Expendable Target (REMET) Project.
- Continue Test Resource, Analysis and Planning task.

- Complete the Simulation Testing Operations Rehearsal Model sub-project, which provides a battlefield environment for brigade and below C4I and tactical internet operational testing.
- Complete the Advanced Missile Instrumentation Package sub-project which provides a capability to accurately track a missile throughout the flight including the high kinematics environment portion of the flight envelope.
- Complete the Enhanced Threat System Replica (XM-43S) sub-project to instrument a threat weapon system.
- Complete the Ultraviolet Stimulator sub-project, which provides an open-air test capability for aircraft missile-warning systems.
- Complete the Integrated Defensive Electronic Countermeasures (IDECM) Test Resources sub-project to develop a semi-active missile simulation capability for ECM testing.
- Complete the Realistic Operational Communications Scenarios (ROCS) sub-project to provide the capability to evaluate the performance of the Tactical Data Network and other Marine Air-to-Ground Task Force C4I systems.
- Complete the Laser Observation Test and Evaluation Capability (LOTEC) sub-project to provide a capability to verify the location of laser target designation data and correlate with fire control information.
- Complete the Utah Test and Training Range Precision Guided Munitions sub-project to provide the extension to the TS-4 Target Complex.
- Complete the Advanced Threat Instrumentation sub-project to instrument threat aircraft to provide real-time flight data into the range data and control infrastructure.

FY 2000 Plans:

JIM Projects:

- Initiate the full-scale development phase for the Electromagnetic Environmental Effects Generating System Project.
- Initiate the full-scale development phase for the Joint Advanced Missile Instrumentation Project.
- Initiate the full-scale development phase of the Multi-Service Target Control System (MSTCS).
- Initiate the Single Sensor Scoring Project to develop small volume, on-board instrumentation to provide accurate scalar and/or vector scoring of intercepts with closing velocities up to 20K feet per second.
- Initiate the DECADE Radiation Test facility Enhancement Project to develop and field an upgraded, above ground ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements.
- Continue to develop an integrated range architecture for range interoperability within the Foundation Initiatives 2010 Project.
- Continue full-scale development phase of the Hardened Sub-miniature Telemetry and Sensor System Project.
- Continue the conventional Holloman High Speed Sled Track upgrade.
- Continue full-scale development for the Advanced Range Telemetry Project.
- Continue threat system simulator development efforts under the Threat System Simulator Development Project to improve integration and reduce potential duplication in threat and target modeling and validation efforts.
- Continue Test Technology Development and Demonstration Project.
- Continue Tri-Service and CTEIP support projects.
- Achieve IOC for the Transportable Range Augmentation Control System Project capability.

- Achieve FOC for the High Speed Massive Memory capability.
- Achieve FOC and completion of the Translated GPS Range System Project.
- Complete the Aerial and Ground Generic Target Models within the Target Modeling and Simulation Project.
- Complete the concept development phase of the Advanced Mobile Object Acquisition System (AMOS) Project to provide the next generation multi-target acquisition system.
- Complete the concept development and the Test Capabilities Benefit Analysis for the Land and Sea Vulnerability Test Capability Project.
- Complete the concept development and the Test Capabilities Benefit Analysis for the BIG CROW EW Enhancement Project.
- Complete the Multi-Spectral Scene Generator and the Infrared Sensor Stimulator instrumentation and continue efforts on the Communication, Navigation, Identification Simulator and the Generic Radar Target Generator instrumentation within the Joint Installed System Test Facility Project.
- Complete the concept development phase for the Electromagnetic Transient (EMT) Test and Evaluation Facility (EMTTEF) Project to provide a capability to assess aircraft hardness to EMT environments to meet MILSTD 464 requirements.
- Complete the Air-to-Air Signature Measurement System (AASMS), continue development of the Acoustic Signature Measurement and Unaugmented Tracking System (ASMUTS), and initiate the Air-to-Ground and Ground Signature Measurement Systems (AGSMS and GSMS) within the Tri-Service Target Signature Measurement and Database System Project.
- Complete concept development and initiate full-scale development of the Airborne Icing Project.
- Complete concept development and initiate full-scale development for the Joint Modeling and Simulation System Project to provide interoperability among the Services' model and simulations.
- Complete the concept development and initiate full scale development for the Programmable Resource Control Project to provide an automatic radar mode management and power allocation control capability for the Multi-Object Tracking Radar.

Resource Enhancement Projects:

- Continue Test Resource, Analysis and Planning task.
- Continue near-term tasks based on critical OT&E test capability shortfalls.
- Complete the Dismounted Troop Instrumentation (DMT) Project.
- Complete the Weapons Analysis Facility Enhancement (WAFER) Project.
- Complete the Radio Frequency Phase Distribution Upgrade (RF PDU) Project.
- Complete the Reconfigurable Electro-Optical and Magnetic Expendable Target (REMET) Project.
- Complete the QF-4 IR Characterization (IR CHAR) Project.
- Complete the Joint OT&E Simulation Environment Facility (JOSEF) Project.

FY 2001 Plans:

JIM Projects:

- Initiate the full-scale development phase of the Advanced Mobile Object Acquisition System (AMOS) Project to provide the next generation multi-target acquisition system.
- Initiate the full-scale development phase for the Land and Sea Vulnerability Test capability Project to provide an instrumented land-sea interface test location at the Aberdeen Test Center.
- Initiate the full-scale development phase for the BIG CROW EW Enhancement Project to upgrade and modernize high power amplifiers, antennas, communications and data systems for the BIG CROW high power stand off jamming capability.
- Initiate the full-scale development phase for the Electromagnetic Transient (EMT) Test and Evaluation Facility (EMTTEF) Project to provide a capability to assess aircraft hardness to EMT environments to meet MILSTD 464 requirements.
- Initiate the Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) System Project to develop a capability to test increasingly complex multi-discipline fusion concepts.
- Initiate the upgrade for the High Frequency Test Facility at Ft. Huachuca, AZ to provide an improved capability for testing in a controlled high RF frequency environment.
- Continue to develop an integrated range architecture for range interoperability within the Foundation Initiatives 2010 Project.
- Continue full-scale development phase of the Hardened Sub-miniature Telemetry and Sensor System Project.
- Continue the Electromagnetic Environmental Effects Generating System Project.
- Continue the Joint Advanced Missile Instrumentation Project.
- Continue development of the Multi-Service Target Control System (MSTCS) Project. This project builds on the usable design, hardware and software available from the canceled Next Generation Target Control System Project.
- Continue the Holloman High Speed Sled Track conventional upgrade.
- Continue development of the Advanced Range Telemetry Project.
- Continue development of the Joint Modeling and Simulation System Project to provide interoperability among the Services' model and simulations.
- Continue development of the Airborne Icing Project.
- Continue development of the Programmable Resource Control Project to provide an automatic radar mode management and power allocation control capability for the Multi-Object Tracking Radar.
- Continue threat system simulator development efforts under the Threat System Simulator Development Project to improve integration and reduce potential duplication in threat and target modeling and validation efforts.
- Continue Test Technology Development and Demonstration Project.
- Continue Tri-Service and CTEIP support projects.
- Achieve FOC for the Transportable Range Augmentation Control System Project capability.
- Complete the Sea Generic Target Model and complete the Target Modeling and Simulation Project.
- Complete the Communication, Navigation, Identification Simulator and the Generic Radar Target Generator instrumentation projects within the Joint Installed System Test Facility Project.
- Complete concept development for the Single Sensor Scoring Project to develop small volume, on-board instrumentation to provide accurate scalar and/or vector scoring of intercepts with closing velocities up to 20K feet per second.

- Complete Acoustic Signature Measurement and Unaugmented Tracking System (ASMUTS) and continue the Air-to-Ground and Ground Signature Measurement Systems (AGSMS and GSMS) developments within the Tri-Service Target Signature Measurement and Database System Project.
- Complete the concept development for the DECADE Radiation Test facility Enhancement Project to develop and field an upgraded, above ground ionizing radiation test capability to meet existing and emerging nuclear weapons effects test requirements.

Resource Enhancement Projects:

- Continue Test Resource, Analysis and Planning task.
- Continue near term tasks based on critical OT&E test capability shortfalls.

**(U) PROGRAM CHANGE SUMMARY**

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
FY 1999 President's Budget	118,718	122,169	128,418	128,774
Appropriated Amount		131,669		
Adjustments				
FY 2000 OSD POM Adj			(4,276)	(4,282)
Purchase Inflation Adj			(2,401)	(2,549)
Current Budget Submit	118,718	131,669	121,741	121,943

C. (U) **OTHER PROGRAM FUNDING** NA

D. (U) **SCHEDULE PROFILE** NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)							February 1999			
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			FOREIGN COMPARATIVE TEST (FCT) PE 0605130D							
\$'s in Thousands	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	COST TO COMPLETE	TOTAL COST
PE 0605130D	32,657	32,684	31,876	31,947	32,087	33,085	33,792	34,491	Cont'g	Cont'g

**A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

The mission of the Foreign Comparative Testing (FCT) program is to test and evaluate foreign non-developmental items (NDI) identified by the CINCs and Services in order to avoid costly and time consuming U.S. new start acquisition programs. The FCT program funds test and evaluation of allied and friendly nation's weapons and equipment to provide procurement alternatives to satisfy U.S. Armed Forces requirements or correct mission area shortcomings. The FCT program is congressionally mandated in Title 10, USC, Section 2350a. FCT projects are nominated by the Services and U.S. Special Operations Command (SOCOM) each year and submitted to Congress for approval prior to expenditure of funds. Approved projects are normally funded for one or two years.

This Research Category 6.5 is assigned and identified in this descriptive summary in accordance with existing Department of Defense policy.

**(U) PROGRAM ACCOMPLISHMENTS AND PLANS:**

FY 1998 Accomplishments:

- Initiated and completed ACADA Power Supply.
- Initiated and completed Ground and Vehicle Mounting System.
- Initiated and completed New Generation Heater.
- Initiated and completed Uncooled Thermal Imager.

- Initiated 40mm Practice Grenade.
- Initiated 120mm APERS Round for M1A1/A2 Tank.
- Initiated Afocal Assembly, NV80 B-Kit.
- Initiated Anti-Riot Grenade.
- Initiated Counter Sniper/Gunfire Detection System.
- Initiated Electronic Module.
- Initiated Laser/Primer Compatible Igniter.
- Initiated MILSTAR Rubidium Standard.
- Initiated Lightweight aluminum Track for AAAV.
- Initiated Maritime Craft Air Deployment System II.
- Initiated Patrol Coastal Decoy System.
- Initiated RDX/HMX Explosives Qualification.
- Initiated Scanner Assembly, NV80 B-Kit.
- Initiated Solid State DC Reference Standard.
- Initiated WX Forecasting System.
- Initiated Submarine Escape and Immersion System.
- Continued Titanium Nitride Coatings for Compressor Blades.
- Continued Castings for Affordable Fighter Structures (CAFS).
- Continued Emergency Evacuation Hyperbaric Stretcher.
- Continued F-15 Counter Measures Dispenser.
- Continued Insensitive Munitions Hellfire Missile Motor.
- Continued Joint JRAAWS Ammunition Upgrades, Phase II.
- Continued Next Generation Small Loader.
- Continued Micro-Satellite for Space Experiments.
- Continued M-72 Light Anti-Tank (LAW) Insensitive Rocket Motor Propellant.
- Continued Remote Operating Vehicle Hot & Pump System.
- Completed 1.75 Watt Linear Drive Cooler.
- Completed 7.62mm Short Range Training Ammunition.
- Completed AJU Communications Faired Mast.
- Completed Atmospheric Diving Suit (Newtsuit).
- Completed C-17 IR Flare.
- Completed Digital Voice and Data System.
- Completed Improved Ballistic Armor Grille.
- Completed Joint RAAWS Ammunition Upgrades, Phase I.
- Completed Parachute Flare Pylon for the F-16.

- Completed Close-Air Support/All-Up Round Warhead for JSOW and CALCM (Navy&AF).
- Completed Mobile Torpedo Decoy C303S for Ship Protection.
- Completed NBC Analysis (JWARN) System.
- Completed Night Vision Goggle Camera System.
- Completed Standard Advanced Dewar Assembly (SADA I).

FY 1999 Plans:

- Complete Anti-Riot Grenade.
- Complete Castings for Affordable Fighter Structures (CAFS).
- Complete Emergency Evacuation Hyperbaric Stretcher.
- Complete Insensitive Munitions Hellfire Missile Motor.
- Complete Laser/Primer Compatible Igniter.
- Complete M-72 Light Anti-Tank (LAW) Insensitive Rocket Motor Propellant.
- Complete Maritime Craft Air Deployment System II.
- Complete Micro-Satellite for Space Experiments.
- Complete MILSTAR Rubidium Standard.
- Complete Next Generation Small Loader.
- Complete RDX/HMX Explosives Qualification.
- Complete Remote Operating Vehicle Hot & Pump System.
- Complete Solid State DC Reference Standard.
- Complete Submarine Escape and Immersion System.
- Complete Titanium Nitride Coatings for Compressor Blades.
- Complete WX Forecasting System.
- Continue 40mm Practice Grenade.
- Continue 120mm APERS Round for M1A1/A2 Tank.
- Continue Afocal Assembly, NV80 B-Kit.
- Continue Counter Sniper/Gunfire Detection System.
- Continue Electronic Module.
- Continue F-15 Counter Measures Dispenser.
- Continue Joint JRAAWS Ammunition Upgrades, Phase II.
- Continue Lightweight Aluminum Track for AAV.
- Continue Patrol Coastal Decoy System.
- Continue Scanner Assembly, NV80 B-Kit.
- Initiate 30mm APFSDS Tracer Round.
- Initiate AAV Aluminum Roadwheels.

- Initiate Automatic Detection IR System.
- Initiate Crusader Automatic Transmission.
- Initiate Emergency Aircraft Arresting System.
- Initiate Joint Service Combat Shotgun.
- Initiate Lightweight Hand Grenade.
- Initiate MC-130H Air Refueling System Pod.
- Initiate Molecular Sieve Oxygen Generating System.
- Initiate Stealth Screen System.

FY 2000 Plans:

- Fund approximately 35 new or continuing foreign system tests and evaluations and/or technology assessments to include:
- Continue 40mm Practice Grenade.
- Continue AFOCAL Assembly, NV80 B-Kit.
- Continue Counter Sniper/Gunfire Detection System.
- Continue Electronic Module.
- Continue F-15 Counter Measures Dispenser.
- Continue Joint JRAAWS Ammunition Upgrades, Phase II.
- Continue Lightweight Aluminum Track for AAV.
- Continue Patrol Coastal Decoy System.
- Continue Scanner Assembly, NV80 B-Kit.
- Continue 30mm APFSDS Tracer Round.
- Continue Crusader Automatic Transmission.
- Continue Emergency Aircraft Arresting System.
- Continue Lightweight Hand Grenade.
- Continue MC-130H Air Refueling System Pod.
- Continue Molecular Sieve Oxygen Generating System.
- Continue Stealth Screen System.

FY 2001 Plans:

- Fund approximately 35 new or continuing foreign system tests and evaluations and/or technology assessments.

**B. (U) Program Change Summary:**

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
FY 1999 President's Budget	32,657	32,684	32,505	32,615
Appropriated Value				
Adjustments to Appropriated Value				
Purchase Inflation Adj			(629)	(668)
Current Budget Submit	32,657	32,684	31,876	31,947

**C. (U) Other Program Funding Summary: NA**

**D. (U) Schedule Profile: NA**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)							February 1999			
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			TEST AND EVALUATION (T&E) PE 0605804D							
\$'s in Thousands	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	COST TO COMPLETE	TOTAL COST
PE 0605804D	99,005	94,253	99,840	99,633	99,723	103,193	105,358	107,537	Cont'g	Cont'g

**A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION**

The program element supports the activities of the Director, Test, Systems Engineering, and Evaluation, Office of the Under Secretary of Defense for Acquisition and Technology (OUSD (A&T)), to manage the DoD test and evaluation process. Unique programs within this PE include Joint Test and Evaluation (JT&E) and the T&E Programs: Threat Systems (TS), Precision Guided Weapons Countermeasures (PGWCM), and the Joint Technical Coordinating Groups on Aircraft Survivability (JTTCG/AS) and Munitions Effectiveness (JTTCG/ME)).

JT&E programs are process, rather than product, focused T&E activities conducted in a joint military environment. These multi-Service programs, chartered by OSD and coordinated with the Joint Staff and Services, provide improvements in interoperability of Service systems, improvements in technical and operational concepts, improved performance of systems, validate testing methodologies, and provide data for validating models, simulations and test beds. JT&E programs solve relevant warfighter issues in a joint T&E environment.

The T&E programs are continuing efforts that provide management and oversight of DoD T&E functions and T&E expertise to the DoD. TS provides OSD policy and oversight to Service Threat Simulator developments to ensure increased commonality, minimize duplications and provide consistent validation. TS funds the management and oversight functions for development of threat specifications and threat simulators, threat representative targets used for T&E, integration of T&E requirements for Foreign Material Acquisition (FMA), and DoD validation of threat simulators, and digital threat models. PGWCM, a DoD Joint Service T&E Directorate, conducts analysis and T&E of Electro-Optical (EO), Infrared (IR), Radar, and Millimeterwave (MMW) weapons, countermeasures (CM) equipment and warning devices for the Services, T&E Agencies, and the Intelligence Community. The JTTCG/AS supports joint research development test and evaluation programs to enhance the combat

survivability of aircraft. This tri-Service organization serves as the DoD focal point for aircraft survivability and represents the Joint Logistics Commanders (JLC) and their Joint Aeronautical Commanders Group (JACG) in dealings with OSD, industry, and other Service agencies. Under the auspices of the Joint Logistics Commander the JTCG/ME publishes the Joint Munitions Effectiveness Manuals (JMEM) which contain weapons effectiveness estimates for all fielded non-nuclear weapons for the DoD. Weapons effectiveness data is available in both paper and electronic media (CD-ROMs, diskettes and via classified computer networks). JMEMs are used by the Armed Forces of the United States, NATO and other allies to develop weapons requirements, plan operational missions, support training and tactics development, and support force-level analyses. The JTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality and weapon system accuracy. JTCG/AS and JTCG/ME jointly sponsor the Survivability/Vulnerability Information Analysis Center (SURVIAC).

This PE also funds T&E Independent Activities to include independent analyses, specific and generic, of weapons systems tests and evaluation process improvements.

The Defense Evaluation Support Activity (DESA), a DoD T&E Activity, has provided T&E expertise to the Services, Defense Agencies, and other Departments and Agencies with DoD interests since 1990. In April 1997, the DEPSECDEF directed disestablishment of DESA and the transfer of the majority of its mission and function to the U.S. Air Force effective 30 September 1997. As part of the transition, OSD and the Air Force agreed that DTE, D would fund the Air Force Operational Test and Evaluation Command for the transition through FY 1999. However, in FY 2000, the DTSE&E must fund buyouts for civilian personnel so that the Air Force is brought back within their Quadrennial Defense Review (QDR) civilian personnel ceiling. The institutional funding for DESA was removed from the DTSE&E budget over the FYDP as part of the Defense-Wide activity reductions of the QDR.

This Research Category 6.5 PE supports joint military testing of the Department's weapons systems to determine if they meet their detailed performance requirements for the Joint Staff and the Services and management of the DoD test and evaluation process.

#### **(U) PROGRAM ACCOMPLISHMENTS AND PLANS:**

##### FY 1998 Accomplishments:

##### JT&E Programs

- Chartered the FY1997 Feasibility Studies, JTD and JSHIP, and commence testing.
- Conducted JT&E annual nomination review.
- Continued JADS, JADS-EW, JTMD, JCSAR, JECSIM, JSEAD, JNCAS and JWF.

- Directed the FY 1998 new nominations, Global Positioning System in a Joint Operational Battlespace Environment (GPS-JOBE), Joint Cruise Missile Defense (JCMD), and Joint Missile Alert Broadcast System (JMABS).
- JNCAS will assess day close air support (JCAS).
- Distributed Band IV management and final reports.
- Completed Band IV outbriefs.

#### T&E Programs

- PGWCM conducted 25 tests of US (ACAT I-IV, ATD, and ACTD) and foreign guided weapons systems including countermeasures (CM) systems, and air, sea, and land threat warning devices in a countermeasure environment. US weapon systems tested included BAT, SFW, and PGMM. Foreign systems tested included a laser beamrider and a laser guided bomb. Threat warning and CM systems tested included the AN/AAR-47, AAR-44, AAR-54, HARLID, BERD, CMWS, Advanced Owl, a Universal Semi-active Laser Jammer, and a variety of airborne flares. Furthermore, OTD has produced a total of 47 reports, including susceptibility analyses and special reports/white papers, such as the Precision Guided Mortar Munition Susceptibility Analysis Report, Drozd Radar Analysis Report, Band IV Simulations Report, SHTORA-1 Susceptibility Analysis, and the Semi-active Laser Seeker Comparative Analysis. Also initiated was the centralization of modeling and simulation efforts into one program office.
- Priority projects and efforts initiated by DESA in prior years and transferred to the Air Force will continue. These include non-traditional T&E support to the JCS, numerous Defense and non-Defense government agencies, National Level Programs, and the Services. Greatest preponderance of effort will be centered on T&E support to DoD ACTDs and providing T&E expertise to existing and emerging Service Battle Labs.
- Threat Systems:
  - Simulators
    - Continued threat support to T&E by investigations of current scientific and technical developments for use in Service threat representation programs (e.g. joint process for correlation of electronic combat test results, modeling of phased array antenna systems, and ground clutter database for simulations).
    - Continued cooperative technical research and test bed projects to facilitate threat representation (e.g., design representative beam steering units, reprogrammable digital receiver design for analog technology, SAM software rehosting, IR missile warning simulator study and generic threat helicopter model).
    - Developed a Defensive Avionics System Test Simulator based on previous work involving IR guided missile warning systems.
    - Executed the DoD validation program for threat simulators and threat digital models.
    - Continued management and oversight over Service threat simulators and threat digital models.
    - Updated the Threat Systems Handbook database to maintain inventory of threat representative assets available for T&E.

- Completed a technical workshop to define and prioritize hybrid threat systems and determine their impact on T&E.
- Completed design and proof of concept demonstration of one multispectral system.

#### Targets

- Initiated cooperative technical research to address shortfalls identified within the target validation program.
- Continued management and oversight over Service threat representative targets.
- Provided the framework to provide the roadmaps to capture requirements data, facilitate the development of a strategy, and depict the target vision of the future.
- Formalized the structure and activities of the DoD validation effort for Service threat representative targets.
- Provided OSD seed funds to prototype solution to highest priority deficiencies in current target systems.
- Continued to develop new target modeling and simulation capabilities/tools that meet multi-Service T&E needs within common/DoD standard architecture.
- Executed initiatives to provide the basis to resolve shortfalls in common digital architecture, enhanced target recovery, and baseline vector scoring.

#### JTCG/AS

- Initiated the CM development for next generation threat seekers.
- Initiated improved, lightweight transparent cockpit armor development and ullage protection systems maturation study.
- Developed IRCM techniques using advanced decoys and laser IRCM
- Developed an integrated modeling environment for assessing one-on-one air weapon systems survivability.
- Continued the survivability evaluation of electric aircraft components and systems.
- Designed and demonstrated the coherent high power electronic attack pod.
- Completed the development of cooperative CM techniques.
- Completed the next generation Halon replacement evaluations for fuel system applications.
- Completed the engine control and decoupled fuel cell vulnerability reduction efforts.
- Together with JTCG/ME, completed development and validation and verification of crew casualty model ORCA.
- Completed imaging and missile CM developments

#### JTCG/ME

- Initiated product distribution via the classified internet with the Special Operations Target Vulnerability and Weaponing Manual increments 1-5, and the Joint Product and Information Access System (JPIAS).

- Continued the expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface Basic Manual changes 14, and Surface-to-Surface Direct and Indirect Fire).
- Continued the execution and technical coordination efforts to address Target Vulnerability methodology improvements (i.e., bridge, industrial components, effectiveness indices scaling, and rock penetration).
- Developed standardized models and methodology for Air-to-Surface, Surface-to-Surface and Antiair effectiveness calculations (i.e., Joint Antiair Model (JAAM) v1.0, delivery accuracy, building analysis, collateral damage, smart munitions, personnel casualty assessment, and search/target acquisition).
- Conducted VV&A efforts on specific JTCG/ME models (i.e., COVART/FASTGEN, FATEPEN, MEVA, Air Target Geometries, and GENESIS BAT)
- Together with JTCG/AS, released Advanced Joint Effectiveness Model (AJEM) beta version, to be followed by v1.0 (with features including FATEPEN 3.0 and External Dynamic Blast), and Joint Component Vulnerability Archive beta version.
- Completed conversion/updates of existing JMEMs to CD-ROM format (i.e., JMEM Air-to-Surface Weaponing Systems (JAWS) v1.2, Joint Antiair Combat Effectiveness - Air Superiority (JACE-AS) v1.0, World Artillery and Mortar Systems (WAMS) v1.0, World Infantry and Tank Systems beta version, and Target Vulnerability Manual v2.0 on JAWS);

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Program; and travel for ODTSE&E.

FY 1999 Plans:

JT&E Programs

- Determine if the FY 1998 Feasibility Studies, GPS-JOBE, JCMD, and JMABS are necessary and feasible for chartering as JT&Es.
- Conduct JT&E annual nomination review.
- Continue JADS-EW, JECSIM, JCAS, JWF, JTD and JSHIP.
- Complete JADS, JTMD, JCSAR, JSEAD and conduct outbriefings, distribute final reports and transition legacy products.

T&E Programs

- PGWCM will conduct 20 -25 tests, including a variety of laser and missile warning systems, and countermeasures systems (DIRCM, CMWS, EWAT/ATAS, Pronghorn); several US weapon systems (MV-22, SLAM-ER, SFW P3I, P-LOCAAS); and foreign systems (Drozdz and other foreign active protection systems, a foreign night sight, and a foreign air defense missile system). Modeling and simulation

efforts will include model-test-model analyses using CASTFOREM to address the performance of defensive aide suites (DAS) on combat vehicles. Applications of the STEP process will include MV-22, foreign laser beamride, and AN/AAR-47 support using various models (e.g. DISAMS, RCVD and TEAM).

- Priority projects and efforts initiated by DESA in prior years and transferred to the Air Force will continue. These include non-traditional T&E support to the JCS, numerous Defense and non-Defense government agencies, National Level Programs, and the Services. Greatest preponderance of effort will be centered around T&E support to DoD ACTDs and providing T&E expertise to existing and emerging Service Battle Labs.

- Threat Systems:

#### Simulators

- Execute the DoD validation program for threat simulators and threat digital models.
- Continue management and oversight over Service threat simulators and threat digital models.
- Continue threat support to T&E by investigations of current scientific and technical developments for use in Service threat representation programs (e.g., threat signal technology services, IR Missile Miss Distance Correlation, and Mission Level Modeling).
- Continue cooperative technical research and test bed projects to facilitate threat representation (e.g., Correlation of EC Test Data and Methodology Demonstration, and Threat Simulators in Support of Information Operations).
- Update the Threat Systems Handbook database to maintain inventory of threat representative assets available for T&E.

#### Targets

- Continue management and oversight over Service threat representative targets.
- Maintain the framework to update the roadmaps that capture requirements data, facilitate the development of a strategy, and depict the target vision of the future.
- Provide OSD seed funds to prototype solutions to highest priority deficiencies in current target systems.
- Support the development of new target modeling and simulation capabilities/tools that meet multi-Service T&E needs within common/DoD standard architecture.
- Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets.
- Continue cooperative technical research to address shortfalls identified within the target validation program.

- JTCCG/AS

- Initiate vectored thrust nozzle and thermal energy management technology vulnerability reduction efforts.
- Initiate dry bay fire and explosion suppression analysis techniques.
- Initiate MW and CM technique to identify and counter next generation SAM and A-A missile threats.
- Complete advanced IR signature programming and initiate composite laser vulnerability.

- Complete laser beamrider CM development and coherent high power electronic attack pod development.
- Along with JTCG/ME, complete development of component vulnerability archive incorporating methodologies, analyses and test data due to a damage mechanism.
- Complete qualification of survivability improvements of a more electric aircraft over a typical hydraulic system.
- Complete engine control and weapons bay vulnerability reductions tasks.
- JTCG/ME
  - Continue conversion/updates of existing JMEMs to CD-ROM format (i.e., JMEM Air-to-Surface Weaponing System (JAWS) v2.0, WinJMEN v2.0, Joint Antiair Combat Effectiveness – Air Defense (JACE-AD) v1.0, World Infantry and Tanks Systems (WITS) beta version, v1.0, Target Vulnerability Manual v3.0 on JAWS, and Special Operation v2.0);
  - Distribute products via the classified internet with the Special Operations Target Vulnerability/Weaponing Manual increments 5/6, and the Joint Product and Information Access System (JPIAS) beta version;
  - Continue expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface Basic Manual – change 15, and Surface-to-Surface Direct/Indirect Fire);
  - Continue execution and technical coordination efforts to address Target Vulnerability data generation and methodology improvements (i.e., bridge, building/contents, industrial components, and rock penetration);
  - Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Antiair effectiveness calculations (i.e., Joint Antiair Model (JAAM) v2.0, visualization tools, delivery accuracy, building analysis, collateral damage, smart munitions and search/target acquisition);
  - Conduct VV&A efforts on specific JTCG/ME models (i.e., COVART/FATEPEN, MEVA, Air Target Geometries, BEAMS, ORCA and ASAP, AJEM and JSWM);
  - Together with the JTCG/AS, release Advanced Joint Effectiveness Model (AJEM) v1.x (with features including Fire Initiation, Ullage Explosion, Composite Materials, HEI Projectile Combined Effects, and Continuous Rods).

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the MRTFBs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Programs; and travel for ODTSE&E.

FY 2000 Plans:

JT & E Programs

- Conduct JT&E annual nomination review.
- Determine if the FY1999 Feasibility Studies are necessary and feasible for chartering as JT&Es.

- Continue JCAS, JWF, JTD, JSHIP, GPS-JOBE, JMABS, and JCMD.
- 
- Complete JADS-EW and JECSIM and conduct outbriefings, distribute final reports and transition legacy products.

#### T & E Programs

- PGWCM will conduct 20-25 test of US and foreign PGW, as well as CM and threat warning systems (SIIRCM/CMWS, TADIRCM, JASSM, MSCM, Longbow P3I, PGMM, LOCAAS, BAT P3I, Javelin LITE II, AAR-47 Sensor Upgrade, Foreign Laser Beamrider, Foreign PGM, Follow-on Foreign Armor Protection system). Modeling and simulation efforts will include preliminary analyses using the TTCP anti-ship-missile engagement model in support of littoral warfare scenarios, as well as the initial use of the NAWC's TSPIL/DSI simulation.
- Threat Systems:
  - Simulators
    - Execute the DoD validation program for threat simulators and threat digital models.
    - Continue management and oversight over Service threat simulators and threat digital models. Continue threat support to T&E by investigations of current scientific and technical development for insertion in Service threat representation programs (engagement radar measurements, and C3 threat simulation).
    - Continue cooperative technical research and test bed projects to facilitate threat representation (target engagement radar measurements & modeling, stochastic missile modeling capability, shoulder-launched threat entity, and reengineering software).
    - Upgrade the Threat System Handbook database to maintain inventory of threat representative assets available for T&E.
  - Targets
    - Continue management and oversight over Service threat representative targets.
    - Maintain the framework to update the roadmaps that capture requirement data, facilitate the development of a strategy and depict the target vision of the future.
    - Provide OSD seed funds to prototype solutions to highest priority deficiencies in current target systems.
    - Support the development of new target modeling and simulation capabilities/tools that meet multi-Service T&E needs within common/DoD standard architecture (i.e. target electronic countermeasures, miniaturization and common digital architecture demonstrations and familiarizations).
    - Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets.
    - Continue cooperative technical research to address shortfalls identified within the target validation program.

- JTCG/AS
  - Start transition to JMASS objects.
  - Develop baseline mission level survivability analysis capability.
  - Develop baseline vulnerability analysis capability.
  - Continue development of advanced ullage and dry bay protection systems.
  - Continue research into thermal energy management techniques on aircraft.
  - Continue development of ways to reduce vulnerability of engine vectored thrust nozzles.
  - Continue development of degradable chaff, and monobit multisignal instantaneous frequency measurement for threat missiles.
  - Continue development of dual mode (RF and IR) seeker countermeasures.
  - Continue mission effectiveness modeling.
  - Continue model credibility enhancements.
  - Complete development of two color focal plane array readout for missile warning systems, integrated on-board and off-board infrared countermeasures.
  - Complete development of an automated flare database.
  - Complete fuze model development and improvements.
  - Complete research into development of capability for in-flight controls reconfiguration due to battle damage.
  - Complete work toward development of advanced transparent armor systems for aircraft windshields and rotorcraft frag barriers.
  - Complete phase development of model for Hydrodynamic Ram phenomenon and reduced vulnerability techniques for engine hot exhaust structures.
- JTCG/ME
  - Continue conversion/updates of existing JMEMS to CD-ROM format (i.e., JMEM Air-to-Surface Weaponing System (JAWS) v3.0, WinJMEM v3.0, Joint Antiair Combat Effectiveness – Air Superiority (JACE-AS) v2.0, Joint Antiair Combat Effectiveness – Ship Antiair Warfare (JACE-Ship AAW) v1.0, World Infantry and Tank Systems (WITS) v1.0, World Artillery and Mortar Systems (WAMS) v2.0, and Target Vulnerability Manual v4.0 on JAWS).
  - Distribute products via the classified internet with the Joint Product and Information Access System (JPIAS) v1.0.
  - Continue expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface Basic Manual – change 16, and Surface-to-Surface Direct/Indirect Fire).

- Continue execution and technical coordination efforts to address Target Vulnerability data generation (e.g. Special Operations) and methodology improvements (e.g., surface mobile targets, buildings and content, rock penetration, agent release model, and combined effects).
- Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Anti-air effectiveness calculations (i.e., Joint Anti-air Model (JAAM) v2.x, delivery accuracy, building collateral damage, and search/target acquisition).
- Conduct VV&A efforts on specific JTTCG/ME models (i.e., Air Target Geometries, BEAMS, ORCA, PENCVR3D and ASAP, AJEM, and MEVA-GF),
- Together with JTTCG/AS, release Advanced Joint Effectiveness Model (AJEM) v2.0 (with features including TBM Body-to-Body, Explosive Initiation, Hydrodynamic Ram, and Blast/Frag Combined Effects), and Joint Component Vulnerability Archive v1.0.
- 
- DESA:
  - Fund buyouts to bring AFOTEC back within their QDR target.

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the MRTFBs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Programs; and travel for ODTSE&E.

FY 2001 Plans:

JT & E Programs

- Charter ongoing JFS' into JT&Es as directed by the SAC.
- Conduct JT&E annual nomination review
- Determine if the FY 2000 Feasibility Studies are necessary and feasible for chartering as JT&Es.
- Continue JCAS, JSHIP and GPS-JOBE, JMABS, and JCMD.
- Complete JWF and JTD and conduct outbriefings, distribute final reports and transition legacy products.

T & E Programs

- PGWCM will conduct 20-25 tests of US and foreign PGWCM and threat warning systems (Multi-spectral CM, F/A-18 NAS, IEWS, JASSM, P-LOCAAS, SLAM-ATA, SIIRCM/CMWS, AAV, AAR-47)). Modeling and simulation efforts will include continued analysis using the TTCP anti-ship-missile engagement model to support littoral warfare scenarios, the NAWC TSPIL/DSI simulation, and expanded use of CASTFOREM/FORCE XXI.

- Threat Systems
  - Simulators
    - Execute the DoD validation program for threat simulators and threat digital models.
    - Continue management and oversight over Service threat simulators and threat digital models.
    - Continue threat support to T&E by investigations of current scientific and technical developments for insertion in Service threat representation programs (i.e., closed loop threat simulator alternatives, lethal SEAD end-to-end OT & training, GPS Jamming Simulator Miniaturization).
    - Continue cooperative technical research and test bed projects to facilitate threat representation.
    - Update the Threat systems Handbook database to maintain inventory of threat representative as (i.e., air-to-air ground mounted missile study, integrated facility validation study, remote instructor station for intelligence threat entity, and EC receiver dynamic range for chamber testing.
  - Targets
    - Continue management and oversight over Service threat representative targets.
    - Maintain the framework to update the roadmaps that capture requirement data, facilitate the development of a strategy, and depict the target vision of the future.
    - Provide OSD seed funds to prototype solution to highest priority deficiencies in current target systems.
    - Support the development of new target modeling and simulation capabilities /tools that meet multi-Service T&E needs within common/DoD standard architectures.
    - Provide oversight of the Service activities in support of the DoD validation program for Service threat representative targets.
- JTCG/AS
  - Begin unmanned air vehicle vulnerability determination/reduction.
  - Analyze aircraft armor attachment qualification techniques and advance armor concepts.
  - Analyze improvements to advanced composite materials manufacturing techniques including thermoplastic, thermosets and bonding of joints.
  - Analyze rotorcraft reconfigurable flight control systems and integrated flight/propulsion control.
  - Conduct dry bay parameter sensitive study.
  - Continue development of countermeasure techniques for new modes of seeker technology.
  - Continue transition to JMASS objects, mission effectiveness modeling, links to cost model and model credibility enhancements.
  - Complete development of advanced ullage and dry bay protection systems.
  - Complete development of degradable chaff, and monobit multisignal instantaneous frequency measurement.

- Complete development of imaging missile IR countermeasures, dual mode (RF and IR) seeker countermeasures.
- Complete research into thermal energy management techniques on aircraft.
- Complete development of ways to reduce vulnerability of engine vectored thrust nozzles.
- 
- JTCG/ME
  - Continue conversion/updates of existing JMEMs to CD-ROM format (i.e., JMEM Air-to-Surface Weaponing System (JAWS) v4.0, WinJMEM v4.0, Joint Antiair Combat Effectiveness – Air Defense (JACE-AD) v2.0, JMEM/Surface-to-Surface Weaponing Effectiveness System (JWES) Beta version, World Infantry and Tank Systems (WITS) v2.0, and Target Vulnerability Manual v5.0 on JAWS).
  - Distribute products via the classified internet with the Joint Product and Information Access System (JPIAS) v2.0.
  - Continue expansion of existing databases to incorporate data for newly fielded weapons (i.e., Air-to-Surface Basic Manual – change 17, and Surface-to-Surface Direct/Indirect Fire).
  - Continue execution and technical coordination efforts to address Target Vulnerability data generation and methodology improvements.
  - Continue the development of standardized models and methodology for Air-to-Surface, Surface-to-Surface and Antiair effectiveness calculations.
  - Conduct VV&A efforts on specific JTCG/ME models.
  - Together with the JTCG/AS, release Advanced Joint Effectiveness Model (AJEM) v2.x (Generalized Body-to-Body and Internal Blast), and Joint Component Vulnerability Archive v1.x.

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the MRTFBs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Programs; and travel for ODTSE&E.

**B. (U) PROGRAM CHANGE SUMMARY**

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget	94,350	96,253	101,810	101,716
Appropriated Value	99,005			
Adjustments to Appropriated Value				
Congressional Adj		(2,000)		
Purchase Inflation Adj			(1,970)	(2,083)
Current Budget Submit	99,005	94,253	99,840	99,633

**C. (U) OTHER PROGRAM FUNDING SUMMARY NA**

**D. (U) SCHEDULE PROFILE NA**